

## REMARKS

The office action of October 22, 2003 has been reviewed and its contents carefully noted. Reconsideration of this case, as amended, is requested. Claims 1 through 9 and 12-13 remain in this case, claims 10-11 being cancelled, claims 12-13 being added, and claim 7 being amended by this response.

Claims 12 and 13 are fully supported by the specification and claims, as filed. Specifically, claim 12 is supported by page 7, lines 6-9, claim 1, and Figs. 1 and 4. Claim 13 is supported by page 4, lines 21-23, claim 1, and Fig. 2. No new matter has been added.

The numbered paragraphs below correspond to the numbered paragraphs in the Office Action.

### Information Disclosure Statement

1. The Examiner did not consider reference AK, <http://www.radiustoothbrush.com> because it lacked a publication date.

Although the Applicant acknowledges a general requirement for a publication date, this reference was a page from a website, and the Applicant does not know when it first appeared for public viewing. The Applicant only knows that the site existed as of the date the page was printed (10/31/01 9:45 AM, in bottom right corner of copy). Applicant respectfully requests that the Examiner consider this reference.

### Objections to the Drawings

2. The Examiner objected to the drawings because Figures 9A and 9B included the reference numeral 24, not described in the specification. The specification has been amended to overcome this objection.

Specifically, the following description of reference numeral 24 has been added to the specification. "The front portion (24) of the handle (20) attaches to a toothbrush head." No new matter has been added, since reference numeral 24 clearly points to the front portion of the handle. Reconsideration and withdrawal of the objections are respectfully requested.

3. The Examiner objected to the drawings because she stated that they did not show the features of claim 7. Applicant respectfully disagrees.

As amended, claim 7 reads “wherein the tuft of bristles further comprises an interior set of U-shaped bristles and two exterior sets of U-shaped bristles, wherein said exterior sets of bristles sandwich said interior set of bristles and the middle section of the bristles in said exterior set of bristles is positioned perpendicularly to the middle section of the bristles in said interior set of bristles.” Figure 6 clearly shows this embodiment of the invention.

“For example, referring to Fig. 6, sets of bristles (13) are sandwiched between two additional sets of bristles (14) which are perpendicular to the first set of bristles (13) of the toothbrush (12). This configuration functions similarly to the configuration shown in Fig. 5. Regardless of the direction of motion, one set of bristles (13) or (14) is always cleaning the teeth while the adjacent set (13) or (14) is massaging the teeth.” (page 9, lines 27- page 10, line 2).

Claim 7 includes in part, “an interior set of U-shaped bristles and two exterior sets of U-shaped bristles”. The interior set of U-shaped bristles is labeled (13). The two exterior sets of U-shaped bristles are labeled (14). Claim 7 continues “wherein said exterior sets of bristles sandwich said interior set of bristles”. The bristles (14) sandwich the bristles (13). “[S]ets of bristles (13) are sandwiched between two additional sets of bristles (14)” (page 9, lines 27-28, emphasis added).

Claim 7 also includes, in part, “the middle section of the bristles in said exterior set of bristles is positioned perpendicularly to the middle section of the bristles in said interior set of bristles”. This is clearly shown in Figure 6. “[S]ets of bristles (13) are sandwiched between **two additional sets of bristles (14) which are perpendicular to the first set of bristles (13)** of the toothbrush (12). (page 9, lines 27-29, emphasis added).

Since all of the elements of claim 7 are shown in Figure 6, applicant respectfully requests reconsideration and withdrawal of the objection to the Figures.

## **Objections to the Claims**

5. Claim 7 was objected to because “each tuft of bristles” was unclear. Claim 7 has been amended to overcome this objection.

More specifically, “each tuft of bristles” has been amended to “the tuft of bristles” in claim 7. The tuft of bristles in claim 7 is correctly dependent off of the at least one tuft of bristles in claim 1. The Examiner stated in her objection that “there is no discussion of sets of a tuft of bristle being sandwiching, exterior, interior, or perpendicular as claim 7 states.” (present office action page 3, lines 7-9). However, claim 7 further limits claim 1, and introduces sets of bristles, and the other terms the Examiner says there is no discussion of. These terms are further limiting the toothbrush bristles of claim 1.

In addition, these terms are used in the specification. “For example, referring to Fig. 6, sets of bristles (13) are **sandwiched** between two additional **sets** of bristles (14) which are **perpendicular** to the first set of bristles (13) of the toothbrush (12). This configuration functions similarly to the configuration shown in Fig. 5. Regardless of the direction of motion, one set of bristles (13) or (14) is always cleaning the teeth while the adjacent set (13) or (14) is massaging the teeth.” (page 9, lines 27- page 10, line 2, emphasis added).

Applicant respectfully requests reconsideration and withdrawal of the objection to claim 7.

## **Rejections under 35 U.S.C. §102**

5. Claims 10 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by Stvartak (6,601,272). Claims 10 and 11 have been cancelled, and the rejection of these claims is now moot.
6. Claims 10 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by Lukenbill (D110,186). Claims 10-11 have been cancelled, and the rejection is now moot.
7. Claims 10 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by Saltzman (2,304,319). Claims 10-11 have been cancelled, and the rejection is now moot.

## Rejections under 35 U.S.C. §103

8. Claims 1 and 3-6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Meunier (2,599,191) in view of Rider (2,317,485). Applicant respectfully disagrees.

The basic considerations which apply to obviousness rejections under MPEP Section 2141 are:

- (1) the claimed invention must be considered as a whole;
- (2) the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (3) the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (4) reasonable expectation of success is the standard by which obviousness is determined.

The toothbrush in claim 1 includes “at least one tuft of bristles, wherein said tuft of bristles comprises a plurality of U-shaped bristles in which a cross-section of said bristles forms a polygon, wherein a first end and a second end of said bristles are embedded in the head such that a **middle section of said bristles form a flattened area** for contact with a tooth.” (emphasis added).

Meunier was discussed in the present application. “U.S. Patent No. 2,599,191, “DENTAL BRUSH HAVING LOOPED BRISTLES,” Meunier (1952), discloses a toothbrush head and bristle configuration based on the fact that the sides of the shaft of the bristle could provide a less traumatic cleaning action especially with persons with sensitive gums. This patent teaches the bristles looping back on themselves forming a simple loop. These loops are duplicated side by side to form a series thereby forming a working head of a toothbrush. **The effective working areas of this brush however are curved points of contact on the looped tufts** and this greatly reduces its cleaning potential compared to regular toothbrushes. This toothbrush is atraumatic in its functioning but is not a very effective cleaning agent.” (page 2, lines 18-26, emphasis added).

The Examiner states that, in Meunier, “the middle section of the bristles form a flattened area (Figure 3 is generally flat while Figure 4 is more rounded).” (present office action, page 5,

lines 6-7). However, despite the Examiner's assertions, the middle section of the bristles in both Fig. 3 and Fig. 4 are rounded. The middle section (10) of the bristles in Fig. 3 are clearly curved, or rounded. They do not form a flattened area. "The bristles 9, as shown in Figs. 1 and 3, are made in the form of strands bent to form end loops 10...." (col. 2, lines 43-45). The loops 10 are the middle section of the bristles in Fig. 3. Loops do not form a flattened area. Two of the standard definitions of a loop are "a length of line, thread, ribbon, or other thin material that is curved or doubled over making an opening" and "something having a shape, order, or path of motion that is circular or curved over on itself." ([www.dictionary.com](http://www.dictionary.com), copy of definition attached). Fig. 3 does not show a flattened area in the middle section, and the patent itself describes the middle section as part of a loop. Loops are clearly curved.

Although the Examiner does not point to this passage in her rejection, col. 4, lines 45-50 in Meunier discusses a potentially substantially square shape of the looped bristles. "While the bristles are shown as preferably having a rounded loop end, said loop may be so controlled as to be substantially square in shape or may be given various different shapes as desired, the essential factor being, however, that said bristles will always have side surface contact with the gums or adjacent tissues of the mouth thereby having a less irritating effect." (col. 4, lines 45-50). However, despite this statement in the patent, if the bristles are looped or bent in the way shown in the figures, they can not have flattened middle sections like those claimed in the present application. Both ends of the loops are in the same hole, making it extremely difficult for the top, middle section to be flattened. Once the bristles are bent and force is applied to them in the way taught in Meunier, flattened middle sections like those claimed in claim 1 of the present application could not be formed.

Rider does not provide what Meunier lacks. Rider teaches specific shapes of the bristles. More specifically, the figures show triangular, square, pentagonal, and hexagonal cross-sections. Rider never mentions U-shaped bristles at all, nor does it teach or suggest bristles having a middle section, which forms a flattened area.

Neither Meunier nor Rider, alone or in combination, teach or suggest a tuft of a plurality of U-shaped bristles, where a middle section of said bristles form a flattened area. Therefore, reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Dependent claims 3-6, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Applicants respectfully request reconsideration of the rejection of claims 3-6, in view of the above amendments and remarks.

New claim 12 includes in part, “at least one tuft of bristles, wherein said tuft of bristles comprises a plurality of U-shaped bristles, wherein a first end and a second end of said bristles are embedded in the head such that a middle section of said bristles form a flattened area for contact with a tooth.” As discussed above, neither Meunier nor Rider, alone or in combination, teach or suggest a middle section of the bristles forming a flattened area. Therefore, claim 12 is nonobvious over Meunier in view of Rider.

New claim 13 includes, in part, “a plurality of bristles in which a cross-section of said bristles forms a polygon and wherein at least a portion of each bristle is twisted lengthwise, such that the tooth contacts more than one corner of the polygon during brushing”. Meunier does not teach or suggest bristles that form a polygon, or polygonal shaped bristles which are twisted lengthwise. Rider does not provide what Meunier lacks. Although Rider does show various polygonal shapes for the bristles, Rider does not teach or suggest a portion of each bristle being twisted lengthwise, such that the tooth contacts more than one corner of the polygon during brushing. Therefore, claim 13 is nonobvious over Meunier in view of Rider.

9. Claims 1 and 3-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton (1,179,426) in view of Rider (2,317,485). Applicant respectfully disagrees.

The toothbrush in claim 1 includes “at least one tuft of bristles, wherein said tuft of bristles comprises a plurality of U-shaped bristles in which a cross-section of said bristles forms a polygon, wherein a first end and a second end of said bristles are embedded in the head such that **a middle section of said bristles form a flattened area** for contact with a tooth.” (emphasis added).

Hamilton does not show tufts of bristles comprising a plurality of U-shaped bristles. Each of the looped bristles (4) in Hamilton are individually placed on the head (see Fig. 3). There are no tufts of bristles including a plurality of U-shaped bristles in Hamilton.

The Examiner states that, in Hamilton, “the middle section of the bristles form a flattened area (Figure 3 is generally flat).” (present office action page 6, lines 6-7). However, Fig. 3 shows curved bristles, and the middle section of those bristles is clearly curved. Fig. 3 is described in the patent. “Upon reference to Fig. 3... each bristle is formed from a single hair or other material bent as illustrated after the fashion of an inverted U with the free ends embedded in the head of the bruss, the **curved or connecting portion** of each bristle forming the engaging surface of the bristle during the use of application of the invention. The **said curved portion** of the bristles renders the scratching and injury to the gums less painful without decreasing the cleaning properties of the brush.” (lines 77-89, emphasis added). The bristles are curved; they do not form a flattened area at all.

Rider does not provide what Hamilton lacks. Rider teaches specific shapes of the bristles. More specifically, the figures show triangular, square, pentagonal, and hexagonal cross-sections. Rider never mentions U-shaped bristles at all, nor does it teach or suggest bristles having a middle section, which forms a flattened area.

Neither Hamilton nor Rider, alone or in combination, teach or suggest a tuft of a plurality of U-shaped bristles, where a middle section of said bristles form a flattened area. Therefore, reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Amended claim 7 reads, in part, “wherein the tuft of bristles further comprises **an interior set of U-shaped bristles and two exterior sets of U-shaped bristles, wherein said exterior sets of bristles sandwich said interior set of bristles** and the middle section of the bristles in said exterior set of bristles is positioned perpendicularly to the middle section of the bristles in said interior set of bristles”. The Examiner points to Figure 2 in her rejection of this claim. “In Fig. 2 I have shown the curved or double bristles surrounding a plurality of single stem bristles 6,.... The curved bristles in this instance are also disposed alternately, that is one bristle extending transversely of the brush head and the next or adjacent bristle extending longitudinally thereof.” (lines 90-92, 95-100). The Applicant assumes that the inventor actually meant that the single stem bristles were 5, as they are labelled in the figure (there is no reference numeral 6 in the figure).

The single stem bristles (5) are not interior sets of **U-shaped bristles**, they are single stem bristles, not looped in any way. In addition, even if the Applicant conceded that the exterior bristles (4) were exterior sets of U-shaped bristles (which the Applicant does not concede), the middle sections of these bristles are not positioned perpendicularly to the middle section of the bristles in the interior set of bristles. First, since the interior bristles in Hamilton do not have a flattened middle section, it is not possible for any exterior sets of bristle to be positioned perpendicularly to that middle section. In addition, the patent specifically states that the looped bristles (4) are disposed alternately, so that every other looped bristle is parallel to the inner, single stem bristles (5).

Dependent claims 3-7, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Applicants respectfully request reconsideration of the rejection of claims 3-7, in view of the above amendments and remarks.

New claim 12 includes in part, “at least one tuft of bristles, wherein said tuft of bristles comprises a plurality of U-shaped bristles, wherein a first end and a second end of said bristles are embedded in the head such that a middle section of said bristles form a flattened area for contact with a tooth.” As discussed above, neither Hamilton nor Rider, alone or in combination, teach or suggest a middle section of the bristles forming a flattened area. In addition, neither patent teaches or suggests tufts of bristles. Therefore, claim 12 is nonobvious over Hamilton in view of Rider.

New claim 13 includes, in part, “a plurality of bristles in which a cross-section of said bristles forms a polygon and wherein at least a portion of each bristle is twisted lengthwise, such that the tooth contacts more than one corner of the polygon during brushing”. Hamilton does not teach or suggest bristles that form a polygon, or polygonal shaped bristles which are twisted lengthwise. Rider does not provide what Hamilton lacks. Although Rider does show various polygonal shapes for the bristles, Rider does not teach or suggest a portion of each bristle being twisted lengthwise, such that the tooth contacts more than one corner of the polygon during brushing. Therefore, claim 13 is nonobvious over Hamilton in view of Rider.

10. Claims 8-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Meunier (2,599,191) in view of Rider (2,317,485) and further in view of Stvartak (6,601,272).

Applicant respectfully disagrees. The argument regarding the obviousness of claim 1 is incorporated here by reference.

Regarding claim 1, upon which claims 8-9 depend, Stvartak does not provide what Meunier and Rider lack. Stvartak teaches a toothbrush with a central control section. The central control section includes four elastomeric lands for receiving the thumb and forefinger of a user. The bristles of the toothbrush are not a subject of the invention. Stvartak does not teach or suggest U-shaped bristles. Therefore, Stvartak does not teach or suggest a middle section of the bristles, which forms a flattened area. Since none of the references, Meunier, Rider, or Stvartak, alone or in combination, teach or suggest the limitations of claim 1, claim 1 is not obvious over these references.

Dependent claims 8-9, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Applicants respectfully request reconsideration of the rejection of claims 8-9, in view of the above amendments and remarks.

11. Claims 8-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton (1,179,426) in view of Rider (2,317,485) and further in view of Stvartak (6,601,272).

Applicant respectfully disagrees. The argument regarding the obviousness of claim 1 is incorporated here by reference.

Regarding claim 1, upon which claims 8-9 depend, Stvartak does not provide what Hamilton and Rider lack. Stvartak teaches a toothbrush with a central control section. The central control section includes four elastomeric lands for receiving the thumb and forefinger of a user. The bristles of the toothbrush are not a subject of the invention. Stvartak does not teach or suggest U-shaped bristles. Therefore, Stvartak does not teach or suggest a middle section of the bristles, which forms a flattened area. Since none of the references, Hamilton, Rider, or Stvartak, alone or in combination, teach or suggest the limitations of claim 1, claim 1 is not obvious over these references.

Dependent claims 8-9, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Applicants respectfully request reconsideration of the rejection of claims 8-9, in view of the above amendments and remarks.

12. Claims 8-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Meunier (2,599,191) in view of Rider (2,317,485) and further in view of Saltzman (2,304,319). Applicant respectfully disagrees. The argument regarding the obviousness of claim 1 is incorporated here by reference.

Regarding claim 1, upon which claims 8-9 depend, Saltzman does not provide what Meunier and Rider lack. Saltzman teaches an improvement for a toothbrush handle. The handle has gripping portions. The bristles are not a subject of the invention. The bristles are merely described as “a plurality of transversely projecting bristle tufts 12.” (lines 48-49). Saltzman does not teach or suggest U-shaped bristles, and therefore can not teach a middle section of those bristles having a flattened area. Since none of the references, Meunier, Rider, or Saltzman, alone or in combination, teach or suggest the limitations of claim 1, claim 1 is not obvious over these references.

Dependent claims 8-9, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Applicants respectfully request reconsideration of the rejection of claims 8-9, in view of the above amendments and remarks.

13. Claims 8-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton (1,179,426) in view of Rider (2,317,485) and further in view of Saltzman (2,304,319). Applicant respectfully disagrees. The argument regarding the obviousness of claim 1 is incorporated here by reference.

Regarding claim 1, upon which claims 8-9 depend, Saltzman does not provide what Hamilton and Rider lack. Saltzman teaches an improvement for a toothbrush handle. The handle has gripping portions. The bristles are not a subject of the invention. The bristles are merely described as “a plurality of transversely projecting bristle tufts 12.” (lines 48-49). Saltzman does

not teach or suggest U-shaped bristles, and therefore can not teach a middle section of those bristles having a flattened area. Since none of the references, Hamilton, Rider, or Saltzman, alone or in combination, teach or suggest the limitations of claim 1, claim 1 is not obvious over these references.

Dependent claims 8-9, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Applicants respectfully request reconsideration of the rejection of claims 8-9, in view of the above amendments and remarks.

#### **Allowable Subject Matter**

14. Claim 2 was objected to as being dependent upon a rejected base claim, but the Examiner indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 1, upon which claim 2 depends, should now be allowable. Reconsideration and withdrawal of the objection are respectfully requested.

#### **Conclusion**

Applicant believes the claims, as amended, are patentable over the prior art, and that this case is now in condition for allowance of all claims therein. Such action is thus respectfully requested. If the Examiner disagrees, or believes for any other reason that direct contact with Applicants' attorney would advance the prosecution of the case to finality, he is invited to telephone the undersigned at the number given below.

"Recognizing that Internet communications are not secured, I hereby authorize the PTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file."

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